

What is claimed is:

1 1. A biodegradable porous device, comprising:
2 a porous polymeric scaffold comprising a co-continuous
3 phase of a first biodegradable polymer and a second
4 biodegradable polymer which are incompatible with each other,
5 wherein the first biodegradable polymer contains a
6 continuous network of large, interconnected pores, and the
7 second biodegradable polymer contains small, partially
8 interconnected pores;

9 a biodegradable polymer fiber dispersed in, and
10 compatible with the matrix of the first biodegradable
11 polymer; and optionally

12 an active ingredient provided in the polymeric scaffold.

1 2. The biodegradable porous device as claimed in claim
2 1, wherein the first biodegradable polymer has a higher
3 biodegradation rate than the second biodegradable polymer
4 and the biodegradable polymer fiber.

1 3. The biodegradable porous device as claimed in claim
2 1, wherein the first biodegradable polymer has a higher
3 porosity than the second biodegradable polymer.

1 4. The biodegradable porous device as claimed in claim
2 3, wherein the first biodegradable polymer has a porosity
3 greater than about 95%, and the second biodegradable polymer
4 has a porosity of about 85 to 95%.

1 5. The biodegradable porous device as claimed in claim
2 1, wherein the large pores have an average pore diameter
3 between about 30 and 250 μm , and the small pores have an
4 average pore diameter between about 1 and 50 μm .

1 6. The biodegradable porous device as claimed in claim
2 1, wherein the first biodegradable polymer is selected from
3 the group consisting of proteins, polysaccharides, synthetic
4 materials, and mixtures or copolymers thereof.

1 7. The biodegradable porous device as claimed in claim
2 1, wherein the second biodegradable polymer is selected from
3 the group consisting of proteins, polysaccharides, synthetic
4 materials, and mixtures or copolymers thereof.

1 8. The biodegradable porous device as claimed in claim
2 1, wherein the biodegradable polymer fiber is selected from
3 the group consisting of proteins, polysaccharides, synthetic
4 materials, and mixtures or copolymers thereof.

1 9. The biodegradable porous device as claimed in claim
2 1, wherein the active ingredient is provided predominately
3 in the matrix of the second biodegradable polymer.

1 10. The biodegradable porous device as claimed in claim
2 1, wherein the polymeric scaffold comprises an effective
3 amount of a biologically active substance that either
4 promotes or prevents a particular variety of cellular tissue
5 ingrowth.

1 11. The biodegradable porous device as claimed in claim
2 1, wherein the polymeric scaffold comprises an effective
3 amount of a pharmaceutically active compound.

1 12. A biodegradable porous device, comprising:
2 a porous polymeric scaffold comprising a co-continuous
3 phase of a first biodegradable polymer and a second
4 biodegradable polymer which are incompatible with each other,

5 wherein the first biodegradable polymer contains a
6 continuous network of large, interconnected pores with an
7 average pore diameter between about 30 and 250 μm , the
8 second biodegradable polymer contains small, partially
9 interconnected pores with an average pore diameter between
10 about 1 and 50 μm , and the first biodegradable polymer has a
11 higher biodegradation rate than the second biodegradable
12 polymer;

13 a biodegradable polymer fiber dispersed in, and
14 compatible with the matrix of the first biodegradable
15 polymer; and

16 an active ingredient provided predominately in the
17 matrix of the second biodegradable polymer.

1 13. The biodegradable porous device as claimed in claim
2 12, wherein the first biodegradable polymer has a higher
3 porosity than the second biodegradable polymer.

1 14. The biodegradable porous device as claimed in claim
2 13, wherein the first biodegradable polymer has a porosity
3 greater than about 95%, and the second biodegradable polymer
4 has a porosity of about 85 to 95%.

1 15. The biodegradable porous device as claimed in claim
2 12, wherein the first biodegradable polymer is gelatin and
3 the second biodegradable polymer is collagen.

1 16. The biodegradable porous device as claimed in claim
2 15, wherein the biodegradable polymer fiber is made of a
3 synthetic polymer selected from the group consisting of
4 polyvinyl alcohol (PVA), polyglycolic acid (PGA), polylactic
5 acid (PLA), poly(glycolic-co-lactic acid) (PLGA), and
6 polycaprolactone (PCL).

1 17. The biodegradable porous device as claimed in claim
2 12, wherein the polymeric scaffold comprises an effective
3 amount of a biologically active substance that either
4 promotes or prevents a particular variety of cellular tissue
5 ingrowth.

1 18. The biodegradable porous device as claimed in claim
2 12, wherein the polymeric scaffold comprises an effective
3 amount of a pharmaceutically active compound.